Boston Borough Council

Carbon Footprint Report

September 2021

Picture by Chris Vaughan

Our mission is to accelerate the delivery of a sustainable, low carbon economy by helping businesses, governments and organisations across the globe to reduce carbon emissions and achieve greater resource efficiency.

CARBON TRUST


Picture by Chris Vaughan

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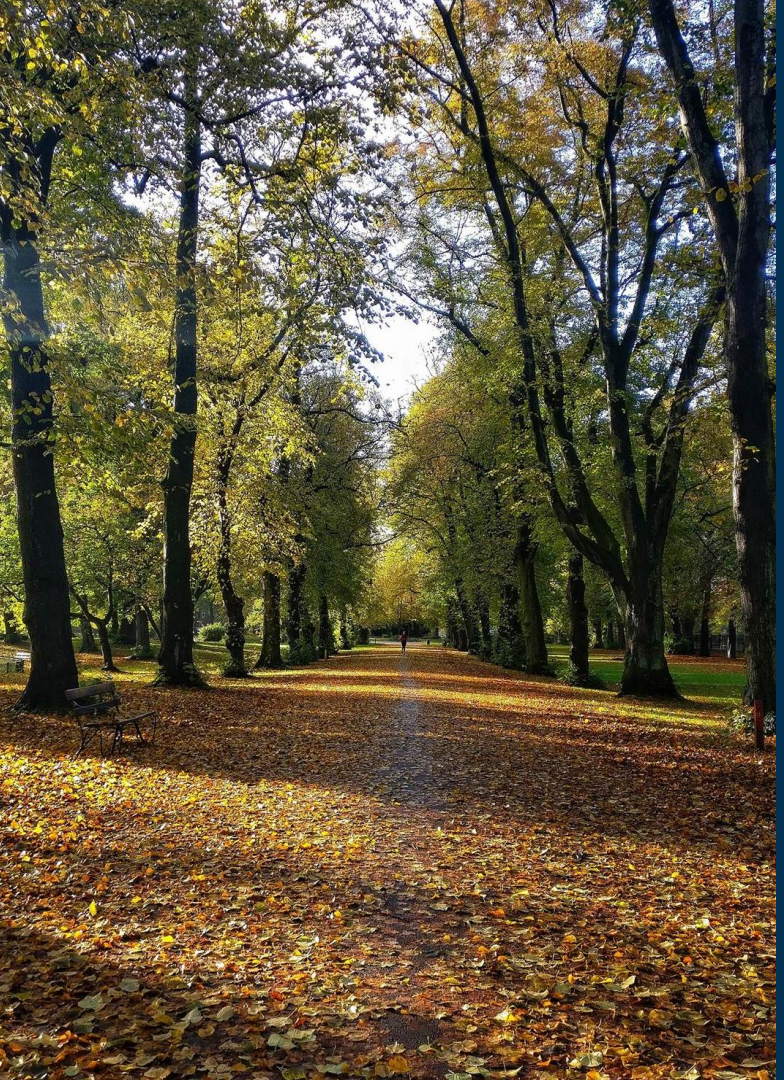


1. Introduction

Who we are

The Carbon Trust

Established in 2001, the Carbon Trust works with businesses, governments and institutions around the world, helping them contribute to, and benefit from, a more sustainable future through carbon reduction, resource efficiency strategies, and commercialising low carbon businesses, systems and technologies.

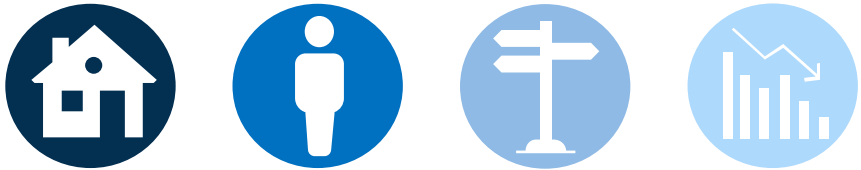
- works with corporates and governments, helping them to align their strategies with climate science and meet the goals of the Paris Agreement;
- provides expert advice and assurance, giving investors and financial institutions the confidence that green finance will have genuinely green outcomes; and
- supports the development of low carbon technologies and solutions, building the foundations for the energy system of the future.

Headquartered in London, the Carbon Trust has a global team of over 200 staff, representing over 30 nationalities, based across five continents.

Background

Boston Borough Council

- **Boston Borough Council declared a Climate Emergency in 2020 and environmental awareness and accountability are identified as a priority in the Corporate Strategy. BBC is committed to addressing the impact of its operations and as part of this commitment has agreed to produce a new Carbon Reduction Plan.**
- BBC have previously measured their organisational carbon footprint, as detailed in the council's Greenhouse Gas Emissions Report for the FY 18/19. BBC would now like to produce an updated emissions report to reflect the council's new climate commitments, progress and latest developments.
- BBC has contracted Carbon Trust to produce an updated carbon footprint measurement for BBC. There is a need to establish a revised carbon baseline for BBC, including measurement of selected Scope 3 emissions. Footprints for the financial years 2018/19, 2019/20 and 2020/21 will be calculated to give BBC a better understanding of its impacts and to identify emissions hot spots. Comparison of the footprints for each year provide the opportunity to quantify the impact of Covid-19 on BBC's emissions.
- In the next phase of work, the carbon footprint will be used to inform the development of a Carbon Reduction Plan, which will provide a framework for reducing emissions from Boston Borough Council's operations.
- The Carbon Reduction Plan will serve to engage and inform key stakeholders on the level of ambition required to pursue decarbonisation across Boston Borough Council's operations and support future decision-making.



Background

Climate change and net zero

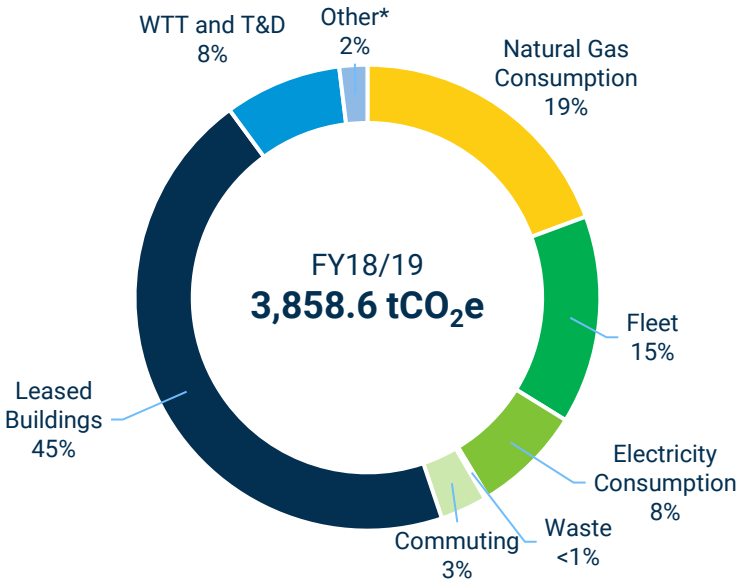
- Emissions produced from anthropogenic sources and activities have resulted in an increase in the average global temperature; and over the next century average global temperatures are anticipated to increase by a further 2 – 4°C.
- This will have an inevitable effect on the planet's climate and natural cycles, including an increase in flooding, sea level rise, drought, wildfires and permafrost thawing.
- To combat this, in 2015, nations pledged to drastically reduce emissions in order to limit the rise in average global temperatures to well below 2°C in line with the Paris Agreement.
- The UK has recognised the scale of the problem and in 2019 declared a climate emergency, aiming to achieve net zero emissions by 2050.
- According to the IPCC's Fifth Assessment Report, unless there are immediate, rapid and large-scale reductions in emissions, limiting warming to close to 1.5 °C or even 2 °C will be beyond reach.
- In line with recommendations from the Committee on Climate Change's 6th Carbon Budget, the UK is set to announce an ambitious target to cut emissions by 78% by 2035 compared to 1990 levels.
- To date, around 230 councils have declared a climate emergency, thereby announcing their own climate ambitions and emissions reductions targets.

2. Executive Summary

Context

- Boston Borough Council wants to first understand the carbon footprint of its operations and use this to identify hotspots and opportunities for emissions reduction, which will inform its Carbon Reduction Plan.
- BBC has commissioned Carbon Trust to calculate its carbon footprint for FY19/20 and FY20/21. The previously calculated baseline of FY18/19, as reported in the council's Greenhouse Gas Emissions Report for the FY18/19, will be revised to include selected Scope 3 emissions. The carbon footprint will also be a point of reference from which BBC can continually monitor progress against targets.
- This report includes the presentation of BBC's operational emissions, future reporting recommendations and the key stages of strategy development which will be the focus of the next phase of work.

Insights – FY18/19 Baseline



The carbon footprint for BBC in FY18/19 was **3,858.6 tCO_2e.**

Key contributors:

- Emissions from the leased buildings were **1,739.9 tCO_2e, 45%** of the carbon footprint.
- Emissions from Operational Facilities* were **1,050.1 tCO_2e, 27%** of the carbon footprint.
- Emissions from BBC's fleet were **558.4 tCO_2e**, **15%** of the carbon footprint.

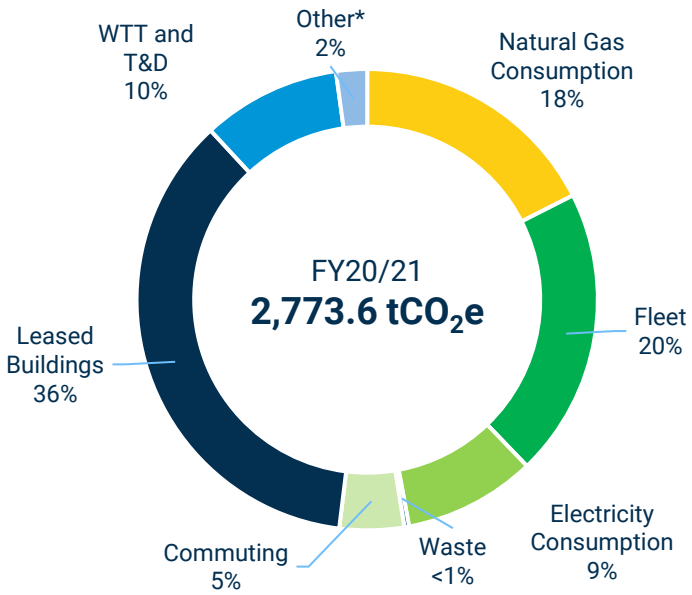
Emissions breakdown by scope

Scope 1	1,318.2	34%
Scope 2	290.3	8%
Scope 3	2,250.1	58%
TOTAL	**3,858.6**	100.0%

*(Natural Gas, Electricity and Other Fuels)

*Other includes Other Fuels, Water and Business Travel

Insights – FY19/20



The carbon footprint for BBC in FY20/21 was **2,773.6 tCO_2e.**

Key contributors:

- Emissions from the leased buildings were **1,003.4 tCO_2e, 36%** of the carbon footprint.
- Emissions from Operational Facilities* were **765.3 tCO_2e, 28%** of the carbon footprint.
- Emissions from BBC's fleet were **556.7 tCO_2e**, **20%** of the carbon footprint.

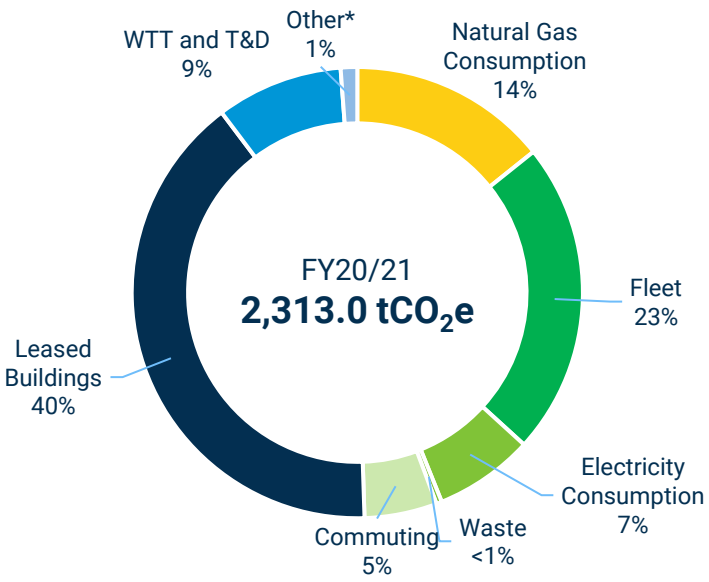
Emissions breakdown by scope

Scope 1	1071.0	39%
Scope 2	257.0	9%
Scope 3	1445.5	52%
TOTAL	**2773.6**	**100%**

*(Natural Gas, Electricity and Other Fuels)

*Other includes Other Fuels, Water and Business Travel

Insights – FY20/21



The carbon footprint for BBC in FY20/21 was **2,313.0 tCO_2e.**

Key contributors:

- Emissions from the leased buildings were **930.6 tCO_2e, 40%** of the carbon footprint.
- Emissions from Operational Facilities* were **503.3 tCO_2e, 22%** of the carbon footprint.
- Emissions from BBC's fleet were **520.5 tCO_2e**, **23%** of the carbon footprint.

Emissions breakdown by scope

Scope 1	858.9	37%
Scope 2	164.9	7%
Scope 3	1289.2	56%
TOTAL	**2313.0**	**100%**

*(Natural Gas, Electricity and Other Fuels)

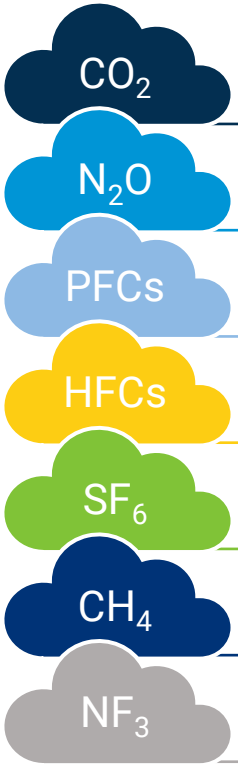
*Other includes Other Fuels, Water and Business Travel

3. Methodology

Greenhouse gases

The Kyoto Protocol

- Greenhouse gases are not limited to CO_2 and under the Kyoto protocol we must consider the emissions of several other GHGs when producing a footprint.
- Each GHG has a specific global warming potential (GWP).
- We measure all gases in tCO_2e – tonnes of carbon dioxide equivalent; this reflects the global warming potential of each gas relative to CO_2.
- When a footprint is quoted in terms of CO_2e, this means that all gases under the Kyoto protocol are included.



	GWP	Source
CO_2	1	Fossil fuel combustion
N_2O	310	Agriculture and soil management
PFCs	~10,000	Aluminium and semi-conductor production
HFCs	1,500–15,000	Refrigeration and air conditioning
SF_6	23,900	Electricity supply equipment
CH_4	21	Agriculture and waste
NF_3	16,100	Semi-conductor and electronics production

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Greenhouse Gas Protocol

Introduction to carbon footprinting

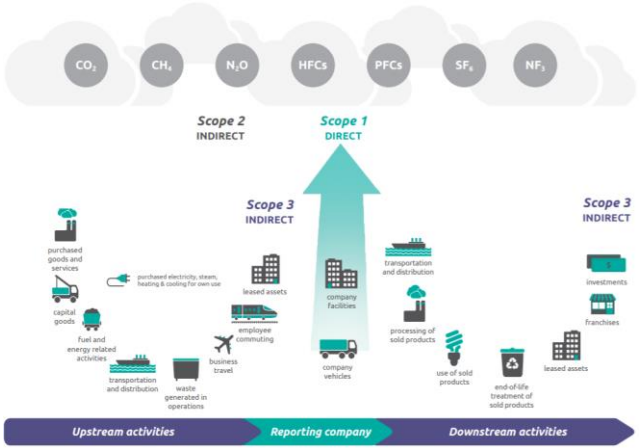
The Carbon Trust has calculated BBC's carbon footprint in accordance with the Greenhouse Gas (GHG) Protocol – the most widely used and accepted methodology for GHG accounting.

An **operational control** approach has been taken to determine the organisational boundary for the carbon footprint. A company has operational control over an operation/entity if it has the *full authority to introduce and implement its operating policies at the operation.* In this case, all activities related to the operation of BBC were considered for inclusion in the carbon footprint.

The organisational boundary also help determine how to categorise each emissions source within the boundary.

Under the GHG Protocol, emissions are categorised into 3 scopes:

- **Scope 1:** Emissions directly emitted by the organization (i.e. gas burnt in a gas boiler, tail pipe emissions from a vehicle)
- **Scope 2:** Emissions indirectly emitted from the consumption of purchased electricity, heat or steam.
- **Scope 3**: All other indirect emissions, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, water consumption, waste disposal, etc.

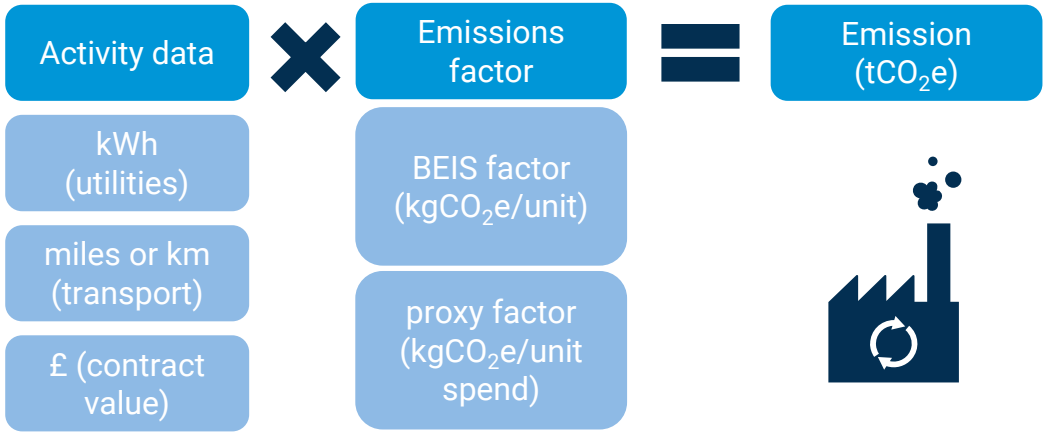


Above: Emission scopes, as defined by the GHG Protocol.

Carbon Footprint Calculations

Introduction to carbon footprinting

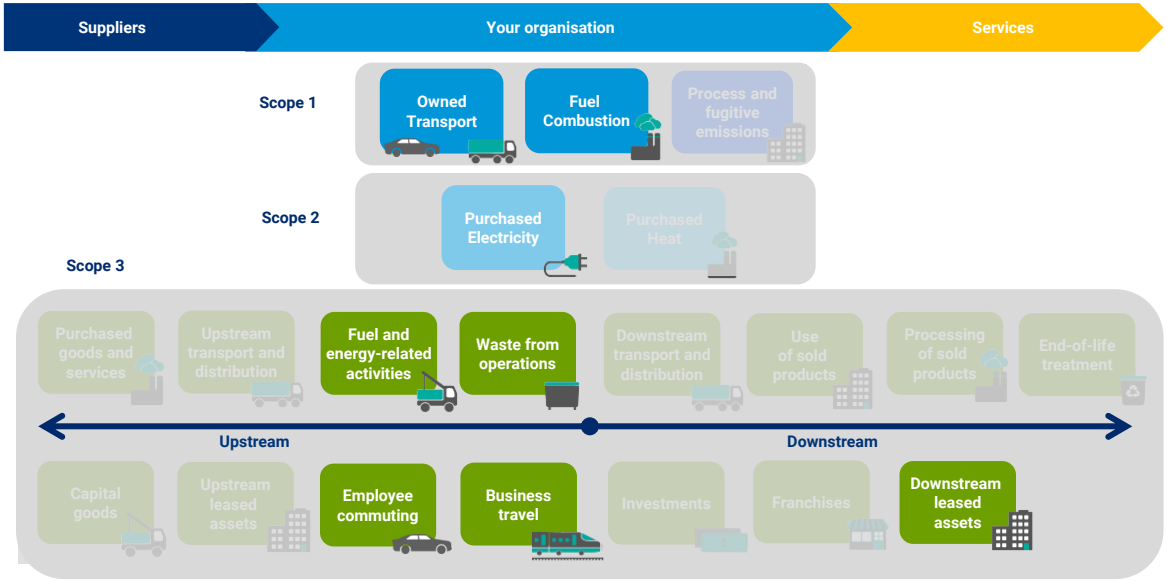
- Where possible, primary activity data should be collected throughout the reporting period for the carbon footprint calculation.
- Emission factors are updated annually and published by the UK Government's department for Business, Energy and Industrial Strategy (BEIS).
- Where primary activity data is not available, appropriate benchmarks or proxies can be used to estimate emissions from that source. For example, typical electricity consumption per m^2 of a building.



Emissions sources included

Data for each emissions source included in the carbon footprint measurement was collected by BBC and reviewed by the Carbon Trust. Any adjustments or estimation that has been applied is reported in Appendix X.

- Emissions sources to be calculated within the chosen boundary of this assessment were agreed with BBC, and include relevant **Scope 1 and 2 emissions and selected Scope 3 emissions**. Relevance of each emissions source was determined using a qualitative assessment of a) perceived magnitude, b) data availability, and c) sphere of influence alongside ability to achieve reductions through direct action.



More details on inclusions and any emissions sources that are currently excluded have been reported in Appendix 1 and 2.

3. Carbon Footprint Analysis

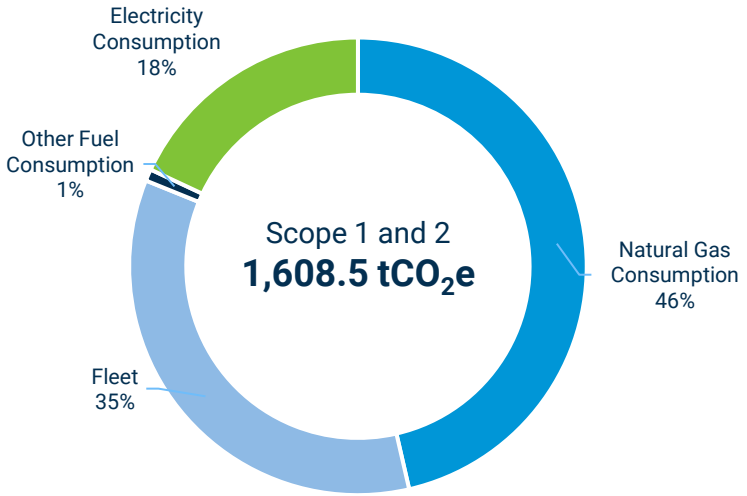
Carbon footprint breakdown

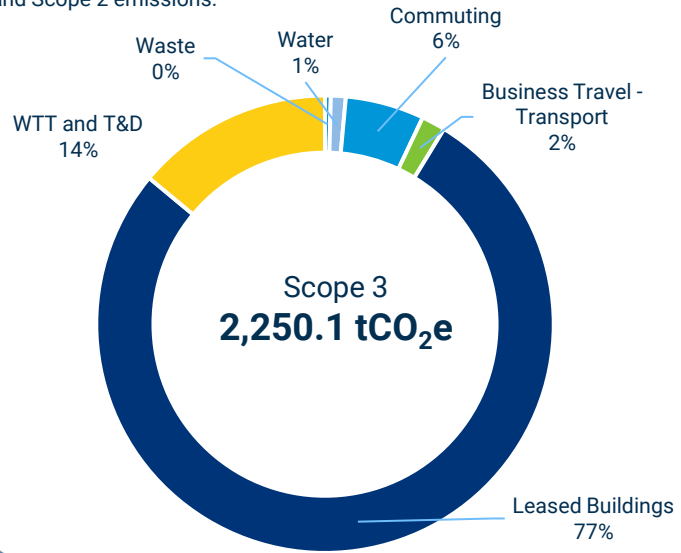
Hotspots

- The total footprint for BBC in FY18/19 was **3,858.6 tCO_2e.**
- **Over one third of emissions, 34% (1,318.2 tCO_2e)** were Scope 1, these are operational emissions as a direct result of the combustion of fossil fuels within the council buildings and fleet.
- Only **8% (290.3 tCO_2e)** were Scope 2, resulting from emissions that arise from operational electricity consumption.
- Over half of emissions, **58% (2,250.1 tCO_2e)** arise from Scope 3. The majority of these are attributed to emissions from energy consumption in leased buildings and WTT and T&D associated with Scope 1 and Scope 2 emissions.

Well-to-tank (WTT) refers to upstream emissions of fuels purchased by BBC, associated with their extraction, production and transportation.

Transmission and Distribution (T&D) refers to emissions that are lost during the transmission and distribution of purchased electricity.

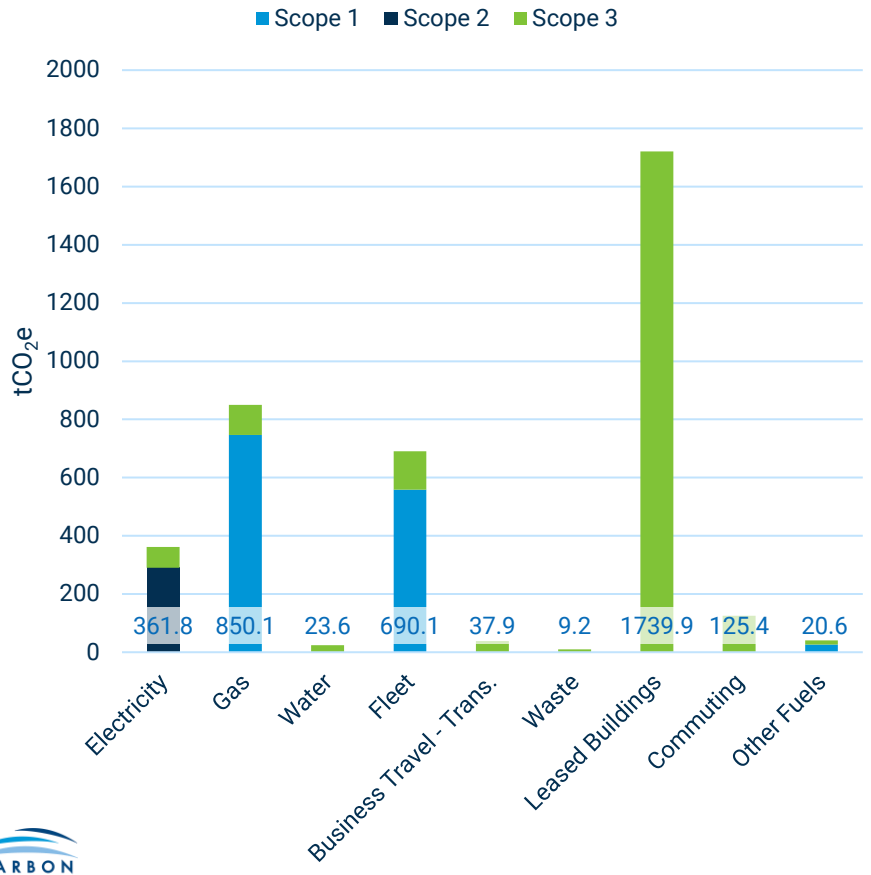




Carbon footprint breakdown

Hotspots

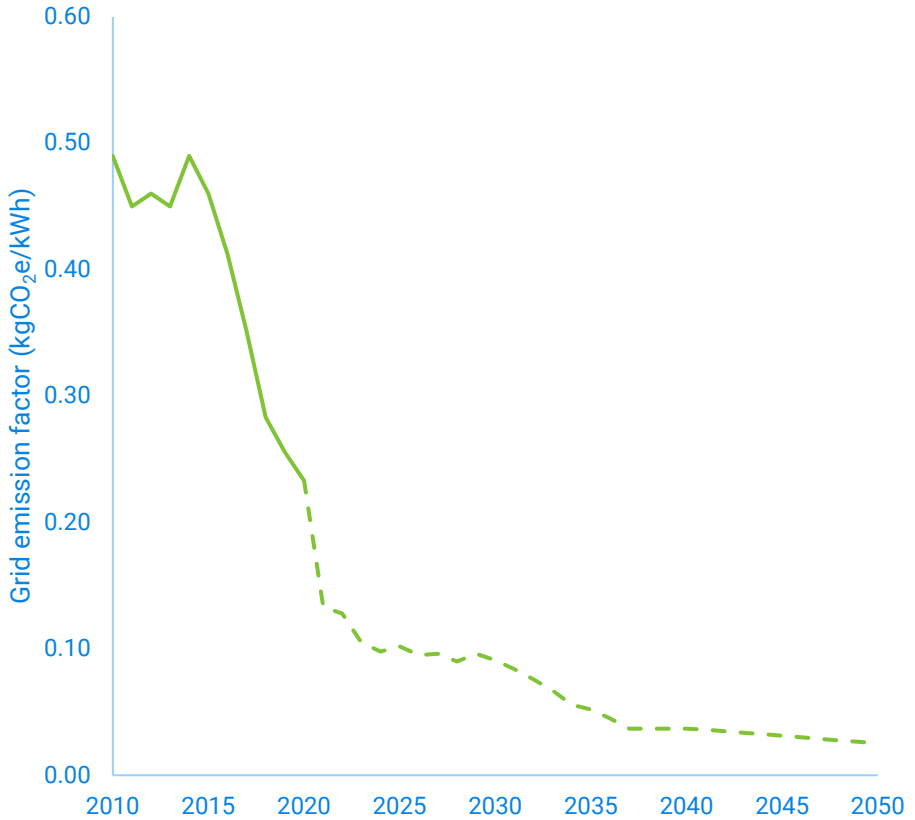
- The chart (right) provides a further breakdown of emissions by scope for each individual emissions source.
- Leased buildings make up the largest single emissions source, representing **45% (1,739.9 tCO_2e) of the total footprint.**
- Operation of buildings and facilities by the council is an emissions hotspot. Emissions from electricity, gas and other fuel consumption make up **27% of the total footprint (1,050.1 tCO_2e).**
- Operation of the council's fleet is also a major contributor to the footprint, accounting for **15% (558.4 tCO_2e) of the total footprint.**
- Emissions from supply of water, treatment of wastewater, employee commuting and business travel are only a small part of the footprint – approximately **5% (187.0 tCO_2e).**



Carbon Footprint

UK Electricity Grid Decarbonisation

- As the UK switches more of its energy production to renewable sources, less carbon dioxide will be produced by the generation of electricity.
- This means over time the grid electricity that is used by consumers will become less carbon intensive.
- Already between 2010 and 2020 the carbon intensity of grid electricity has decreased by over 50%. This has largely been driven by coal fired power plants being taken off line and the large scale rollout of offshore wind farms.
- The projections of the grid intensity in the future are produced by BEIS[1]. It is expected that the carbon intensity of grid electricity will be just 4% of 2010's values.
- Other projections produced by national grid even have the carbon intensity becoming negative under certain scenarios – namely through the roll out of bioenergy carbon capture and storage.
- This "greening of the grid" makes electrification of transport and heating an attractive option from a carbon reduction perspective. Already the grid is green enough to mean travelling one kilometre in an electric vehicle is less carbon intensive than one kilometre by a petrol/diesel vehicle. It is anticipated that in the next few years, the grid will have decarbonised enough to mean one kWh of heating consumed from an electric heater will be less carbon intensive than one kWh of heating from a gas boiler.



[1] BEIS Green Book

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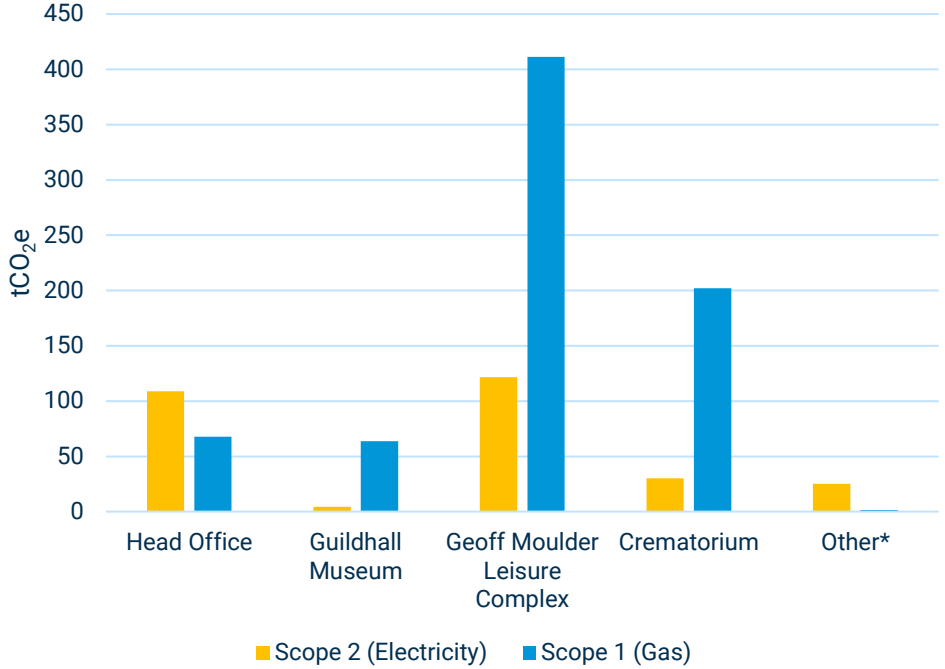
Operational Emissions

Emissions from consumption of gas and electricity at BBC operated buildings and facilities

- The chart (right) provides site level view of operational emissions (Gas and Electricity) for FY18/19.
- Operational emissions from all sites make up **27% (1050.1 tCO_2e) of the total footprint.**[1]
- Emissions are dominated by the Geoff Moulder Leisure Complex and the Crematorium. These two sites account for 73% of all operational emissions.
- The majority of emissions arise from the use of natural gas, used for space and water heating functions. These emissions will not decrease with time in line with UK grid decarbonisation. Reducing these emissions will require energy efficiency measures and switching heating modes, e.g. air source heat pumps.
- As a result of these measures, electricity consumption, and costs associated with Scope 2 emissions, will increase over time. Due to the rate of grid decarbonisation, it is unlikely that Scope 2 emissions themselves will increase. Hence measures should also be taken to reduce electricity consumption across all operational sites.



[1] WTT and T&D is excluded from these numbers. It was found to be 182.4 tCO_2e for operational emissions.

*Other contains temporary accommodation sites, leisure sites, power supply, depot and public toilets.

Carbon Footprint

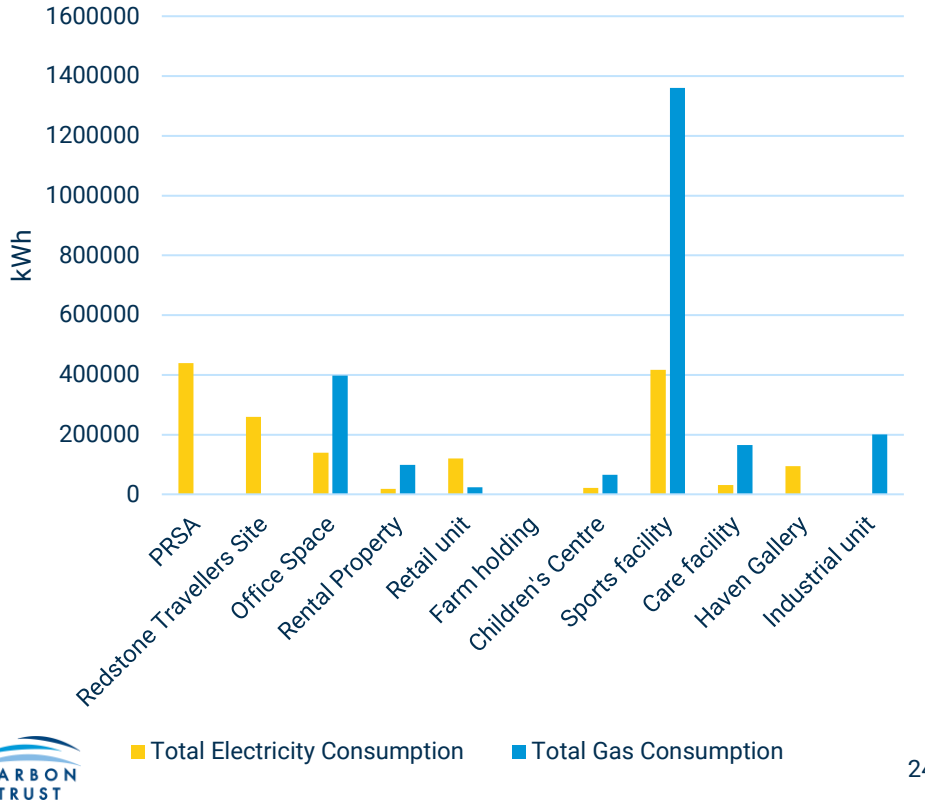
Market versus Location Based Approaches

- At present there are two methodologies that can be used to account for scope 2 emissions:
  - A **location-based approach** is the most frequently used and uses an emission factor based on all the generating supplies of electricity to the grid (national grid). This is the approach that has been used within this report. The introduction of any renewable generators exporting to the grid is captured in a lower UK wide grid emission factor, that everyone benefits from within their carbon accounting.
  - Alternatively, a **market-based approach** looks at where the consumer of electricity pays to have their electricity come from, such that if a consumer makes the conscious decision to purchase electricity from a 'green' supplier then this is accounted for in their carbon footprint. When a market-based approach is used and the footprint reported, the location-based footprint must always be reported alongside.
- Incentivising the reporting of a location based approach is good practice as it ensures that the challenge of reducing demand through energy efficiency is tackled first. Moreover, reduced demand means less consumption and thus cheaper bills, whereas simply switching to a green supplier may result in increased electricity bills.

Leased Buildings Emissions

Emissions from consumption of gas and electricity at BBC leased buildings

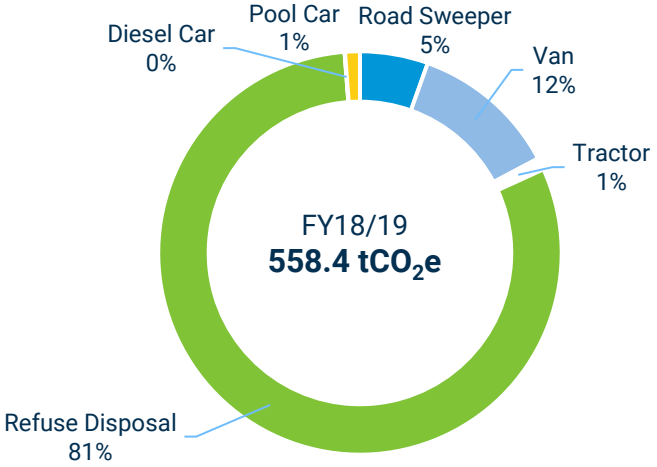
- Emissions from leased buildings were found to be **1,739.9 tCO2e, 45% of the carbon footprint.**
- **19.4 tCO2e** is from consumption of Biomass at the Princess Royal Sports Arena and the Enterprise Centre.
- Where actual consumption data was not available, emissions were estimated from the floor area and building type.
- The chart (right) provides building category view of estimated electricity and gas consumption FY18/19.
- The majority of emissions arise from the use of natural gas, used for space and water heating functions. These emissions will not decrease with time in line with UK grid decarbonisation. Reducing these emissions will require energy efficiency measures and switching heating modes, e.g. air source heat pumps.
- As a result of these measures, electricity consumption, and costs associated with Scope 2 emissions, will increase over time. Due to the rate of grid decarbonisation, it is unlikely that Scope 2 emissions themselves will increase. Hence measures should also be taken to reduce electricity consumption across all operational sites.
- Leased building emissions are Scope 3 and BBC does not have direct control over them. It is important that BBC influence and engage with building occupants to adopt energy efficiency and fuel switching measures.



Fleet Emissions

Emissions from fuel consumed in vehicles owned and operated by the council

- The BBC fleet contained 41 vehicles in FY18/19. 35 of these were diesel fueled maintenance vehicles, one diesel car and 5 pool cars, assigned petrol fuel type. Maintenance vehicles include road sweepers, vans, refuse disposal vehicles and tractors.
- Emissions from fleet contributed **558.4 tCO_2e*, equivalent to 15% to the total carbon footprint.**
- Fuel consumption figures were provided by BBC. The total estimated fuel consumption for **FY18/19** was **213,045 litres.**



*Figures excluding well-to-tank, WTT. An additional 131.7 tCO_2e was associated with Scope 3 WTT emissions from fleet fuel consumption

Water and waste

Water

- Emissions from water consumption were **23.6 tCO_2e, equivalent to 0.6% of the total carbon footprint.**
- It was assumed that 95% of water supplied was treated as waste water.
- The majority of emissions (88%) arise from water consumption at toilets (59%) and sports facilities (29%).

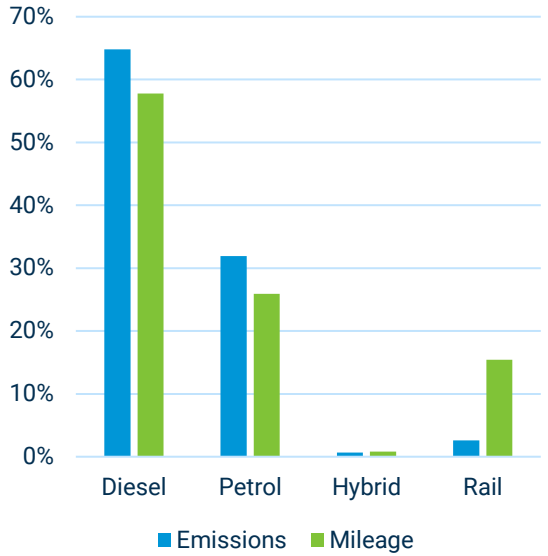
Waste

- Emissions from waste were **9.2 tCO_2e, equivalent to 0.2% of the total carbon footprint.**
- The volume of waste bins by waste type (general waste, dry mixed recycling etc.) was provided, along with their collection frequency for most operational sites. It was assumed all bins were at full capacity each time they are collected. Waste density factors were used to convert the volume of waste into mass, and emissions were calculated.
- Going forwards, effort should be made to collect waste data for all sites.

Business Travel and Commuting

Business Travel

- Emissions from business travel were **37.9 tCO_2e, equivalent to 1% of the total carbon footprint.**
- A total of 120,899 miles were expensed at a cost of £46,526.
- Diesel vehicles accounted for almost two thirds of emissions in this category (24.6 tCO_2e), despite accounting for only 58% of mileage. A similar trend can be seen with petrol vehicles.
- Conversely, rail travel accounts for only 3% of emissions, despite making up 15% of mileage. Low carbon transport should be encouraged for business travel purposes across the organisation.



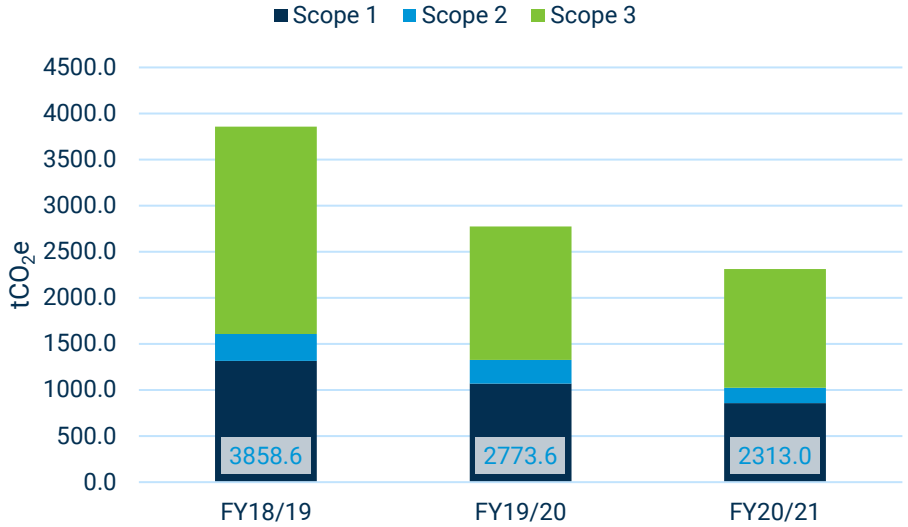
Commuting

- Commuting data for employees of BBC was not available, therefore an emissions factor was applied based on the number of employees.
- BBC has 297 employees. Emissions from commuting were **125 tCO_2e, equivalent to 3% of the total footprint.**

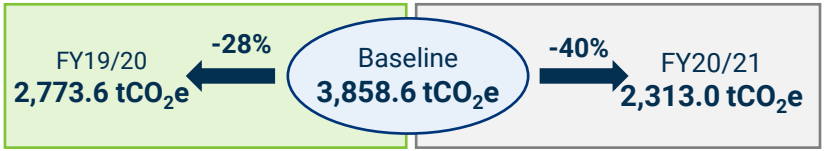
4. Comparative Analysis

Context

- BBC are interested in gauging the impact of the COVID -19 pandemic on their Carbon Footprint. The pandemic has significantly affected daily activity at BBC and its impact is clear to see in the FY20/21 footprint. Employees were encouraged to work from home, business travel was restricted and activity at leased sites was limited due to national restrictions.
- In total emissions decreased by 40% in FY20/21 compared to the baseline, and emissions decreased across all categories. BBC could use the learnings from this year to identify potential methods for emissions reduction across the Council.



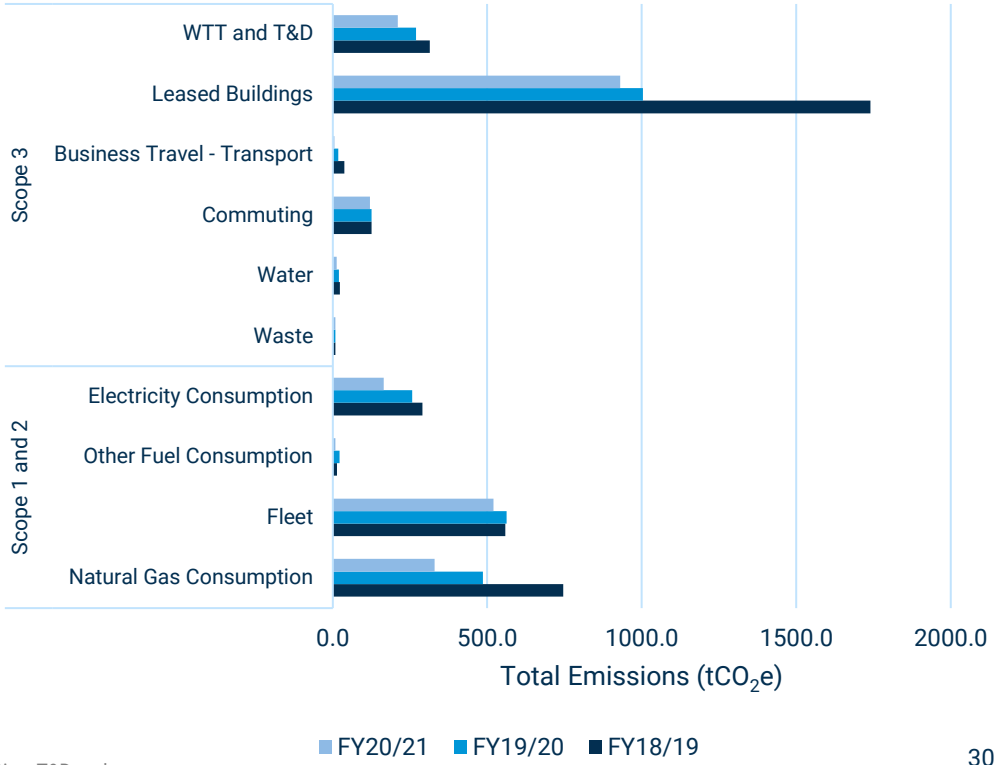
Annual performance



Key drivers:

- Emissions from operational natural gas consumption (scope 1) **decreased by 56%** from FY18/19 to FY20/21.
- Emissions from operational grid electricity (scope 2) **decreased by 43%** from FY18/19 to FY20/21.
- Emissions from leased buildings **decreased by 47%** (scope 3). This is partially driven by reduced electricity consumption for the Princess Royal Sports Arena, despite a small increase in LPG consumption at this site.
- Emissions from fleet (scope 1) **decreased by 7%.** Despite an increase in heavy duty diesel vehicles in the fleet, the litres of fuel consumed decreased over this period.

The pandemic has meant leisure centres were periodically closed to the public and employees were more likely to be working from home, which would likely decrease the amount of electricity and heating fuels consumed at operational sites such as offices and leisure centres.



[1]Scope 3 emissions sources include: Water, Business travel, Leased buildings, Waste, Commuting, T&D and WTT

Insights

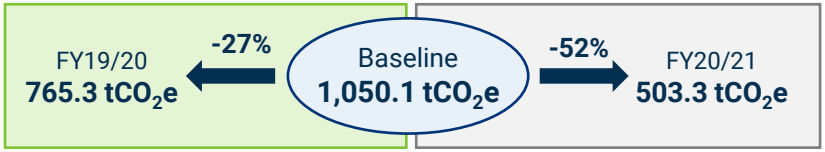
Summary

One tonne of CO_2e (tCO_2e) is the equivalent to the average emissions of one passenger on a return-flight from Paris to New York or driving 6000km in a diesel car.

		FY18/19		FY19/20		FY20/21		
Scope	**Emissions Source**	**Total emissions (tCO_2e)**	**Percentage of total (%)**	**Total emissions (tCO_2e)**	**Percentage of total (%)**	**Total emissions (tCO_2e)**	**Percentage of total (%)**	**% change in emissions FY18/19-FY20/21**
1	**Natural Gas Consumption**	**746.4**	**19%**	**486.3**	**18%**	**329.9**	**14%**	**-56%** ↓
	Fleet	**558.4**	**14%**	**562.7**	**20%**	**520.5**	**23%**	**-7%** ↓
	Other Fuel Consumption	20.6	0.5%	33.3	1%	12.1	0.5%	-36% ↓
2	Electricity Consumption	290.3	8%	257.0	9%	164.9	7%	-43% ↓
3	Waste	9.2	0.2%	9.2	0.3%	9.2	0.4%	-94% -
	Water	23.6	0.6%	20.0	1%	13.2	0.6%	-44% ↓
	Commuting	125.4	3%	125.4	5%	120.3	5%	-4% ↓
	Business Travel - Transport	37.9	1%	18.2	1%	5.7	0.2%	-85% ↓
	Leased Buildings	**1739.9**	**45%**	**1003.4**	**36%**	**930.6**	**40%**	**-47%** ↓
	WTT and T&D	306.9	8%	258.1	9%	206.7	9%	-33% ↓
Total		**3858.6**	**100.0%**	**2773.6**	**100%**	**2313.0**	**100%**	**-40%** ↓

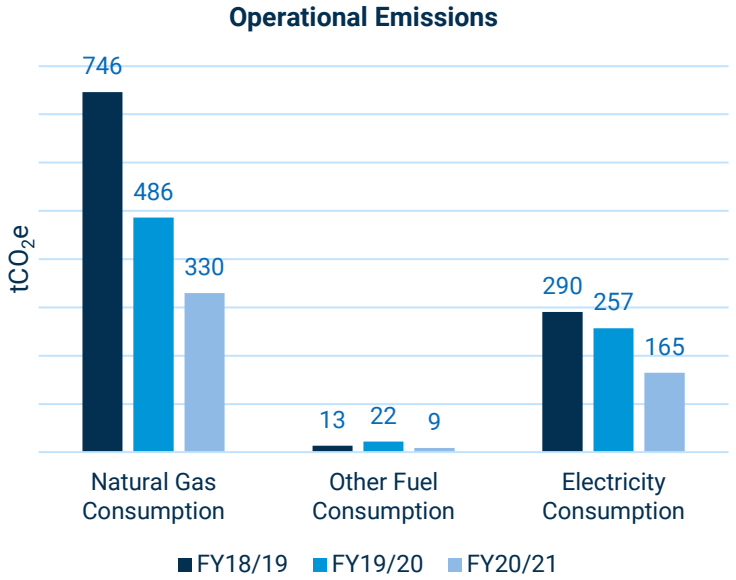
Comparison | Operational Emissions

Emissions from consumption of gas and electricity at BBC operated buildings and facilities



In FY20/21, there was a 36% decrease in operational scope 1 and 2 emissions compared to the baseline, largely driven by a 56% decrease in natural gas consumption.

- In FY20/21 operational Scope 1 emissions made up 37% of the total carbon footprint:
  - Emissions from natural gas consumption **decreased by 56% compared to the baseline,** driven by decreased consumption of gas at Municipal Buildings, Geoff Moulder Leisure Complex and Crematorium.
  - Emissions from other fuel consumption (biomass and LPG) decreased by 36% compared to the baseline, driven by decreased consumption of gas at the Geoff Moulder Leisure Complex
- In FY20/21, operational Scope 2 emissions **decreased by 43% compared to the baseline.** This was due to a decrease in electricity consumption at Municipal Buildings, the Geoff Moulder Leisure Centre and Crematorium.



Total Emissions (tCO_2e)	*FY18/19*	*FY19/20*	*FY20/21*
WTT and T&D Natural Gas	103.7	63.2	42.9
WTT and T&D Fleet	131.7	134.1	124.9
WTT and T&D Other Fuels	7.2	11.3	4.5
WTT and T&D Electricity	71.5	60.7	38.9

Table 2. WTT and T&D emissions associated with operational scope 1+2 emissions

*Figures exclude WTT and T&D. Table 2 details associated Scope 3 WTT and T&D emissions for operational scope 1 and 2

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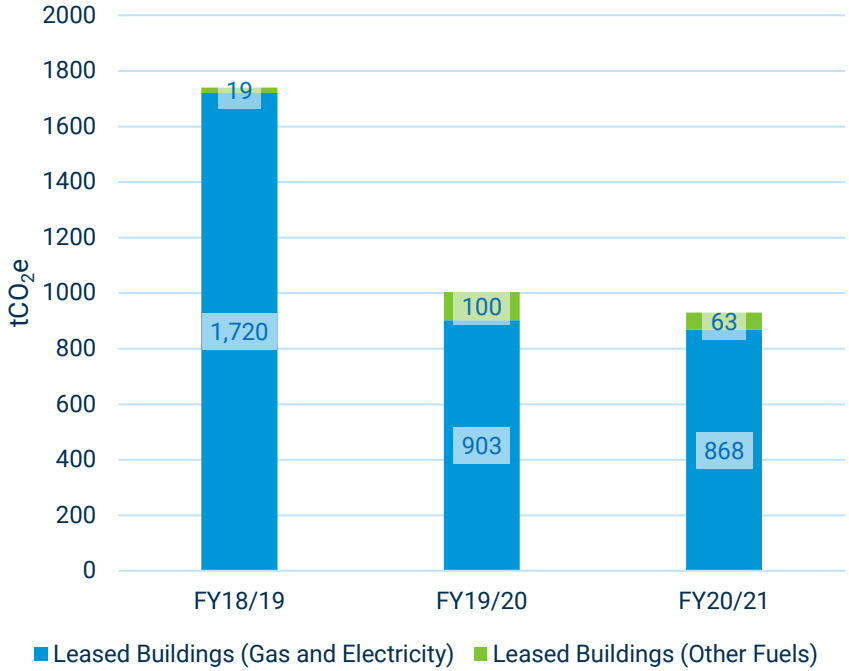
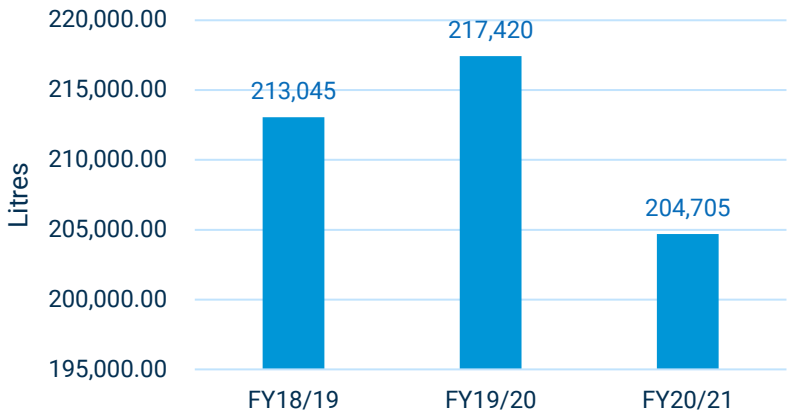
Comparison | Leased Buildings

- Emissions from leased buildings **decreased by 47% in FY20/21 compared to the baseline.**
- Where actual activity data was unavailable, leased building electricity and gas consumption was estimated from floor area and building type. Electricity activity data was provided for the Princess Royal Sports Arena, Travellers Site Redstone and LCC space in Municipal Buildings. Any changes in emissions must come from changes to this activity data.
- Consumption at the Redstone Travellers Site decreased by 4% compared to the baseline in FY19/20, but increased by 1% compared to the baseline in FY20/21.
- The decrease in emissions was driven by reduced gas and electricity consumption for the Princess Royal Sports Arena, Enterprise Centre and LCC space in Municipal Buildings, despite a small increase in LPG consumption at PRSA.



Comparison | Fleet

- The BBC fleet FY18/19 contained 41 vehicles. 35 were large diesel vehicles such as road sweepers, vans and tractors. The change in fleet composition can be seen in the table below. In FY20/21, 11 large diesel vehicles were added to the fleet.
- Fuel consumption and cost data was provided for vehicles. The fuel consumption for each year can be seen in the graph to the right.
- Emissions from fleet vehicles **decreased by 7% in FY20/21 compared to the baseline,** even though there were more vehicles in the fleet in FY20/21. This is due to the reduced fuel consumption.



Total number of vehicles and emissions

	FY18/19		FY19/20		FY20/21	
Vehicle Type	**Number of vehicles**	**Emissions (tCO_2e)**	**Number of vehicles**	**Emissions (tCO_2e)**	**Number of vehicles**	**Emissions (tCO_2e)**
Large diesel vehicles misc.	35	551.6	33	555.4	46	516.3
Diesel cars	1	0.2	0	0	0	0
Petrol cars	5	6.6	5	7.3	6	4.1

Comparison | Water and waste

Water

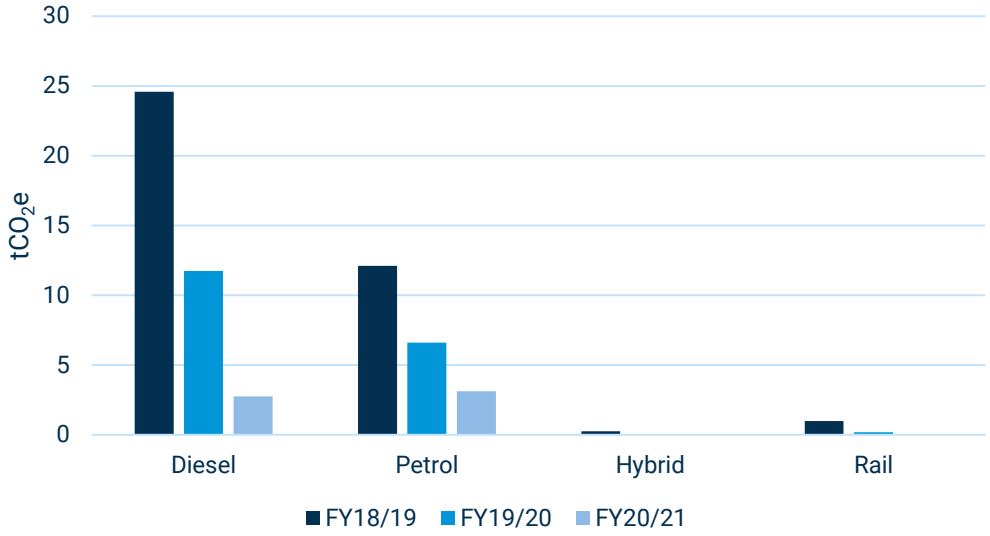
- Water consumption **decreased by 44% from the baseline to FY20/21**. This was driven by a decrease in the volume of water consumed from 23,263 m^3 in the baseline to 12,971 m^3 in FY20/21. The decrease in water consumption occurred at public toilet facilities and the Geoff Moulder Leisure Complex. The reason for the decrease is likely due to people staying home more during the pandemic; closure of facilities; or changes in usage through new hygiene habits.

Waste

- Waste related emissions remained constant across the three footprint years. This is because waste was estimated from approximate waste volume data which was the same across the three years. General waste was assumed to be combusted as waste-to-energy. Collection of more specific waste data will enable more insight into waste processing in BBC.

Comparison | Business travel

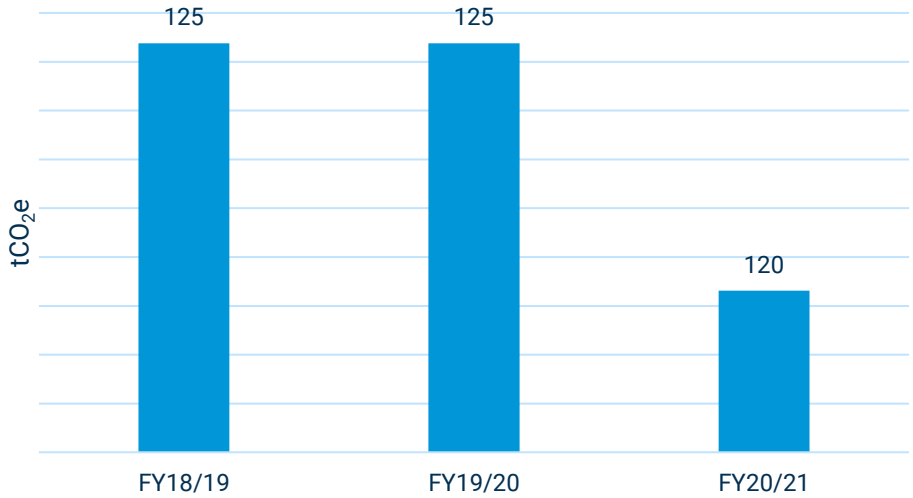
- Business travel by car and rail journeys was reported.
- The total mileage claimed was **120,899 miles in the baseline and 17,188 miles in FY20/21.** This dramatic decrease in mileage is likely due to the effects of pandemic, where employees were encouraged to work from home and business travel was discouraged unless vital.
- As a result of reduced mileage likely driven by the travel restrictions imposed during the pandemic, **emissions from business travel decreased by 84%.**



Reducing emissions from business travel

Comparison | Commuting

- Emissions from commuting decreased by 4% from the baseline to FY20/21.
- Commuting was estimated by applying a benchmark to employee numbers, so the decrease is due to a decreased number of employees at BBC from 297 to 285 in FY20/21.
- It is likely the effects of the pandemic had a greater effect on commuting levels than seen here. Carbon Trust recommend BBC collect an annual commuting survey, detailing the mode of transport, distance commuted and number of days per week commuted. This would allow for a more accurate analysis of commuting emissions to be carried out.



5. Recommendations and next steps

Recommendation 1

Data collection processes

- **To streamline the calculation of the footprint, BBC should work to implement a data collection framework to facilitate the data collection process, share responsibilities across the team and ensure data is provided to an appropriate level of detail and in a timely manner.**
- Designated data owners across each team e.g. estates or finance could collect the required data and communicate this directly to a central sustainability lead. This will allow relevant data at the correct level of detail to be collected across departments and fed to a dedicated resource who can collate the data.

Recommendation 2

Data quality

To improve the accuracy of the footprint calculation, BBC should focus efforts towards improving the quality of collected data for their scope 1, 2 and 3 carbon footprint measurement.

Leased Buildings
As a significant contributor to emissions, it is important that BBC has an accurate picture of emissions from this category. Efforts should be made to collect primary electricity and gas consumption data for these sites. This will enable monitoring of actual consumption change to be carried out and carbon reduction projects to be tracked.

Waste
Collection of actual waste data from operated buildings and facilities. Moving beyond approximations and collecting waste tonnage and type will provide more clarity on how waste is managed so that BBC can make more informed decisions on how to reduce its impacts.

Commuting
Consider running a staff survey collecting vehicle type, distance travelled and travel frequency data from employees. This will enable primary commuting data to be collected, improving the accuracy of the footprint.

Recommendation 3

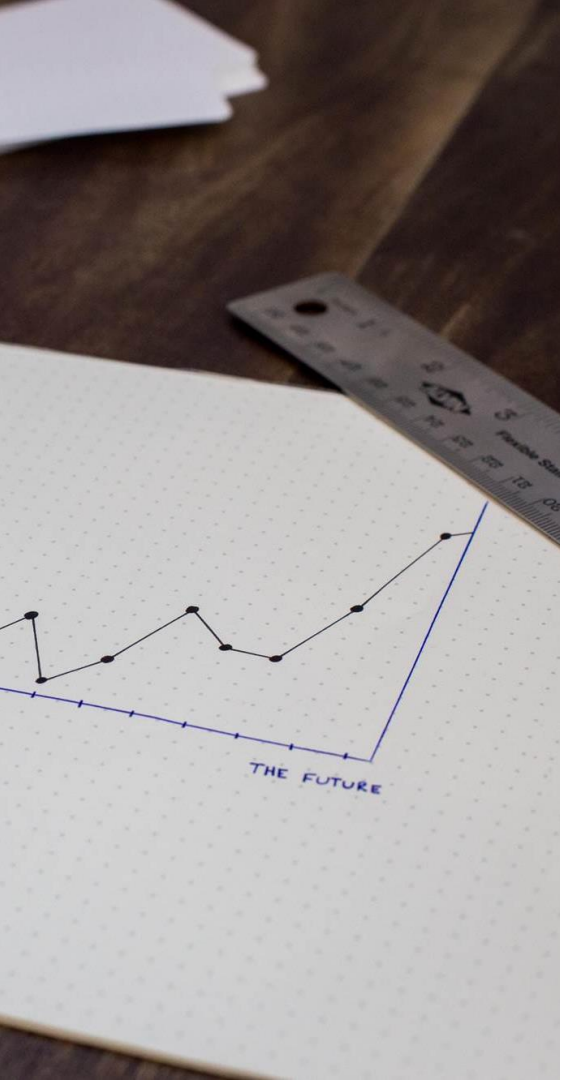
Monitoring and Reporting

- **Once a carbon footprint has been measured, measuring progress is an important part of implementing a carbon reduction strategy. Monitoring and reporting are essential activities that should be undertaken at least annually, and beyond.**
- Collection of data should be completed internally on a regular basis. This process should become streamlined as the necessary data sources and associated owners become familiar with the process and adopt best practice data management.
- BBC's carbon footprint should be reported regularly to allow for monitoring of progress and the impacts of initiatives that are put in place.
- In addition to monitoring the footprint itself, BBC should continually monitor how local plans and policies will affect BBC's footprint and affect BBC's ability to reach respective carbon reduction targets. This will help the project team to identify other potential carbon reduction opportunities and ensure that any carbon reduction co-benefits of specific policies can be delivered.

Recommendation 4

Internal engagement and strategy

- **BBC should communicate the results of the carbon footprint to all staff members and if possible, externally.**
- Results from the footprint should be published internally and externally to signal the organisation's commitment to reducing its impacts.
- BBC should focus on developing a variety of internal communications to raise awareness and build capabilities internally. This will be crucial when looking to develop a strategy that is effective. Engagement from the offset will help gain buy-in for BBC's priorities, and encourage behaviour change across the organisation.



Next Steps

1. **Presentation to senior leadership**
2. **Target setting and pathway analysis**
   - Using the findings of this footprint report, Carbon Trust will use the baseline to model a target pathway that aligns to national Net Zero commitments and compare this to a business as usual scenario. This will help identify the emissions reductions required to align to national targets, and frame discussions around how to achieve it.
3. **Stakeholder workshops**
   - Results of the carbon footprint report, pathway analysis and action plan will be presented to stakeholders
4. **Carbon Reduction Plan**
   - Carbon Trust will work closely with BBC to identify and prioritise carbon reduction projects and develop an initial set of recommendations to assist carbon reduction activities across the organisation.

Appendices

Appendix 1: Emissions sources included

BBC opted to include the following emissions sources in their carbon footprint. Data for each emissions source was collected by BBC and reviewed by the Carbon Trust. Adjustments to figures have been applied where necessary. Any emissions sources that are currently excluded have been reporting in Appendix 3.

Scope	Activity data	Source Data	Data quality and assumptions
Scope 1	Natural gas consumption	Consumption and cost data was provided for operational facilities and buildings.	Actual consumption data was used to calculate emissions.
	Vehicle fossil fuel consumption	Fuel consumption and cost data for the fleet vehicles operated by BBC was provided.	Actual consumption data was used to calculate emissions.
	Other Fuels	Consumption and cost data was provided for operational facilities.	Actual consumption data was used to calculate emissions.
Scope 2	Electricity consumption in buildings	Consumption and cost data was provided for operational facilities and buildings.	Actual consumption data was used to calculate emissions.
Scope 3	Business travel (transport & accommodation)	mileage and cost data was provided for expensed journeys.	Actual consumption data was used to calculate emissions.
	Water consumption	Consumption and cost data was provided for operational facilities and buildings.	Actual consumption data was used to calculate emissions.
	Waste output and disposal	The number of bins, volume of bins and waste stream of each bin was provided for selected facilities, along with collection frequency.	It was assumed each bin was full at time of collection. Waste density factors were used to convert volume to mass. Emissions were calculated from this mass. General waste was assumed to be combusted.
	Leased Buildings	Electricity consumption data was provided for PRSA, Redstone Travellers Site and LCC space in Municipal Buildings. Floor area was provided for remaining sites.	Where actual consumption data was available, this was used to calculate emissions. Where not available, emissions were estimated from the floor area and building type.
	Employee commuting	No employee commuting data was provided.	A benchmark was applied to the number of employees to estimate emissions.

Appendix 2: Excluded emissions sources

The GHG Protocol recognises that there are several reasons why an organisation may exclude sources of emissions from their inventory, either because it is not relevant or because there are challenges with collecting reliable information. For this footprint, the following emissions sources were not included. It is recommended that these be kept under review for inclusion in future years.

Some emissions categories are not relevant to BBC's operations and have therefore been excluded from this footprint (e.g. franchises).

	Emissions source	Assessment	Reason for exclusion
Scope 1	Refrigerants	Not included	Could be included in future footprints
Scope 3 (upstream)	Upstream transportation and distribution	Not relevant	Any transport related to purchased goods is included in Category 1: Purchased goods and services
	Upstream leased assets	Not included	Leased asset energy consumption is estimated and Scope 3 excluded
	Purchased goods and services	Not Included	Could be included in future footprints
Scope 3 (downstream)	Investments	Not relevant	Could be included in future footprints
	Downstream transportation and distribution	Not relevant	Could be included in future footprints
	Processing of sold products	Not relevant	BBC do not manufacture any goods
	Use of sold products	Not relevant	BBC do not manufacture any goods
	End-of-life treatment of sold products	Not relevant	BBC do not manufacture any goods
	Franchises	Not relevant	BBC do not operate any franchises

Appendix 3: Data sources

Raw data, emissions factors and benchmarks used in calculation of the footprint are detailed here

- Utilities, vehicle mileage, water consumption, business travel data used for the carbon footprint – BBC
- Emission Factors – BEIS
- BEIS car size classification – BEIS

The Carbon Trust is a company limited by guarantee and registered in England and Wales under company number 4190230 with its registered office at 4th Floor Dorset House, Stamford Street, London SE1 9NT.